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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/815,781 | 03/23/2001 | Hitoshi Ebihara | SCEI 3.0-041 | 5299 |

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LAW OFFICES
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EXAMINER

QUILLEN, ALLEN E

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2676

DATE MAILED: 08/28/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

OK

Office Action Summary

Application No.

09/815,781

Applicant(s)

EBIHARA ET AL.

Examiner

Allen E. Quillen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-176 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 110-140 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-176 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5, 6. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. In paper number 11, filed July 16, 2003, Applicant elected Species (a) below, Figures 3-9, Claims 1-11, 110-140.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 1-11, 110-140 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiraz, U.S. Patent 6,411,302, in view of MacInnis, et al, U.S. Patent 6,573,905, in further view of Bright, et al, U.S. Patent 6,128,025.

6. Regarding claim 1, representative of claims 9, 11, 110, 118, 124, 127, 138, 139, Chiraz discloses an apparatus for processing image data to produce an image for covering an image area of a display (Figure 1, Column 11, lines 9-14), comprising: a plurality of graphics processors (Figure 9, elements 32A, 32N, Column 13, lines 28-32; Figure 25, elements 176, 180, 184, Columns 23-24; Column 16, lines 54-57), each graphics processor being operable to render the image data into frame image data and to store the frame image data in a respective local frame buffer (Column 13, lines 20-27); a control processor (*CPU*, Column 6, line 30) operable to provide instructions (*graphics commands*, Figure 25; *DirectDraw*, lines 51-55; *GDI calls*, Column 18, lines 35-38) to the plurality of graphics processors.

[Claim 11 further] Chiraz discloses one of more modes (*full screen*, *page flipping*, Column 7, lines 23-38).

Chiraz does not disclose: and one or more merge units operable to synchronously receive the frame image data. MacInnis teaches and one or more merge units operable to synchronously receive the frame image data (Figure 4, elements 94, 108; Figure 69, elements 2730A-2730C; Column 108, lines 54-65). The motivation for combining frame image data processing using multiple frame buffers and multiple displays with one or more merge units is to blend various

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graphics layers and the appropriate alpha blend values for the video layers to enable a single logical display surface (Column 6, lines 29-30). MacInnis is evidence that at the time of the invention, it would have been obvious to one skilled in the art of logical screen frame-based data processing to combine the benefits of multiple processors and multiple displays, as Chiraz discloses, with digitized video graphics merge units, as MacInnis teaches, to blend various graphics layers to achieve a single logical screen.

Chiraz does not disclose from the respective local frame buffers and to synchronously produce combined frame image data based thereon. Bright teaches from the respective local frame buffers and to synchronously produce combined frame image data based thereon (Column 2, lines 48-50, 55-58; Column 9, lines 55-60, *each driving a portion of the LCD display*). The motivation for combining frame image data processing using multiple frame buffers and multiple displays with synchronously combined frame image data is to enable the graphics controller (*rendering engine*, Column 1, line 25) to generate row and column addresses for refreshing the display (Column 1, lines 48-60). Bright is evidence that at the time of the invention, it would have been obvious to one skilled in the art of logical screen frame-based data processing to combine the benefits of multiple processors and multiple displays, as Chiraz discloses, with synchronization using timing logic, as Bright teaches, to enable the graphics controller (*rendering engine*, Column 1, line 25) to generate row and column addresses for refreshing the display (Column 1, lines 48-60).

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7. Regarding claim 2, representative of claims 3, 10, 117, Chiraz discloses an apparatus of claim 1, wherein the graphics processors release the frame image data from the respective local frame buffers to produce the frame image (see above).

Chiraz does not disclose from the respective local frame buffers at least one of the one or more merge units is operable to produce the frame image. MacInnis teaches and one or more merge units operable to synchronously receive the frame image data (Figure 4, elements 94, 108; Figure 69, elements 2730A-2730C; Column 108, lines 54-65). The motivation for combining frame image data processing using multiple frame buffers and multiple displays with one or more merge units is to blend various graphics layers and the appropriate alpha blend values for the video layers to enable a single logical display surface (Column 6, lines 29-30). MacInnis is evidence that at the time of the invention, it would have been obvious to one skilled in the art of logical screen frame-based data processing to combine the benefits of multiple processors and multiple displays, as Chiraz discloses, with digitized video graphics merge units, as MacInnis teaches, to blend various graphics layers to achieve a single logical screen.

Chiraz does not disclose a merge synchronization signal used by the graphics processors to release the frame image data from the respective local frame buffers to the one or more merge units. Bright teaches from the respective local frame buffers and to synchronously produce combined frame image data based thereon (Column 2, lines 48-50, 55-58; Column 9, lines 55-60, *each driving a portion of the LCD display*). The motivation for combining frame image data processing using multiple frame buffers and multiple displays with synchronously combined frame image data is to enable the graphics controller (*rendering engine*, Column 1, line 25) to generate row and column addresses for refreshing the display (Column 1, lines 48-60). Bright is

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evidence that at the time of the invention, it would have been obvious to one skilled in the art of logical screen frame-based data processing to combine the benefits of multiple processors and multiple displays, as Chiraz discloses, with synchronization using timing logic, as Bright teaches, to enable the graphics controller (*rendering engine*, Column 1, line 25) to generate row and column addresses for refreshing the display (Column 1, lines 48-60).

8. Regarding claim 4, representative of claims 5-8, 111-113, Chiraz, MacInnis, Bright discloses an apparatus of claim 2.

Chiraz does not disclose, wherein the merge synchronization signal is synchronized in accordance with a display protocol defining how respective frames of the combined frame image data are to be displayed. Bright teaches from the respective local frame buffers and to synchronously produce combined frame image data based thereon (Column 2, lines 48-50, 55-58; Column 9, lines 55-60, *each driving a portion of the LCD display*). The motivation for combining frame image data processing using multiple frame buffers and multiple displays with synchronously combined frame image data is to enable the graphics controller (*rendering engine*, Column 1, line 25) to generate row and column addresses for refreshing the display (Column 1, lines 48-60). Bright is evidence that at the time of the invention, it would have been obvious to one skilled in the art of logical screen frame-based data processing to combine the benefits of multiple processors and multiple displays, as Chiraz discloses, with synchronization using timing logic, as Bright teaches, to enable the graphics controller (*rendering engine*, Column 1, line 25) to generate row and column addresses for refreshing the display (Column 1, lines 48-60).

9. Regarding claim 119, representative of claims 120-123, 125-126, 128, 130-136, 137, Chiraz discloses a method of claim 110, wherein the graphics processors can operate in one or more modes (*full screen, page flipping*, Column 7, lines 23-38) that affect when image data are rendered, when frame image data produce the image data (column 42, lines 25-46).

Chiraz does not disclose released from the respective local frame buffers when and how frame image data are merged to produce the combined frame image data. MacInnis teaches released from the respective local frame buffers when and how frame image data are merged to produce the combined frame image data (Figure 4, elements 94, 108; Figure 69, elements 2730A-2730C; Column 108, lines 54-65). The motivation for combining frame image data processing using multiple frame buffers and multiple displays with one or more merge units is to blend various graphics layers and the appropriate alpha blend values for the video layers to enable a single logical display surface (Column 6, lines 29-30). MacInnis is evidence that at the time of the invention, it would have been obvious to one skilled in the art of logical screen frame-based data processing to combine the benefits of multiple processors and multiple displays, as Chiraz discloses, with digitized video graphics merge units, as MacInnis teaches, to blend various graphics layers to achieve a single logical screen.

Chiraz does not disclose a merge (i) timing relationships [synchronization signal] used by the graphics processors to (ii) synchronously release the frame image data from the respective local frame buffers to the one or more merge units. Bright teaches from the respective local frame buffers and to synchronously produce combined frame image data based thereon (Column 2, lines 48-50, 55-58; Column 9, lines 55-60, *each driving a portion of the LCD display*). The

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motivation for combining frame image data processing using multiple frame buffers and multiple displays with synchronously combined frame image data is to enable the graphics controller (*rendering engine*, Column 1, line 25) to generate row and column addresses for refreshing the display (Column 1, lines 48-60). Bright is evidence that at the time of the invention, it would have been obvious to one skilled in the art of logical screen frame-based data processing to combine the benefits of multiple processors and multiple displays, as Chiraz discloses, with synchronization using timing logic, as Bright teaches, to enable the graphics controller (*rendering engine*, Column 1, line 25) to generate row and column addresses for refreshing the display (Column 1, lines 48-60).

10. Regarding claim 124, representative of claim 127, Chiraz discloses the method of claim 122, further comprising the at least two graphics processors (see above).

Chiraz does not disclose aggregating the frame image data from the respective rendering areas of and the combined frame image data are capable of covering the image area. MacInnis teaches released from the respective local frame buffers when and how frame image data are merged to produce the combined frame image data (Figure 4, elements 94, 108; Figure 69, elements 2730A-2730C; Column 108, lines 54-65). The motivation for combining frame image data processing using multiple frame buffers and multiple displays with one or more merge units is to blend various graphics layers and the appropriate alpha blend values for the video layers to enable a single logical display surface (Column 6, lines 29-30). MacInnis is evidence that at the time of the invention, it would have been obvious to one skilled in the art of logical screen frame-based data processing to combine the benefits of multiple processors and multiple

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displays, as Chiraz discloses, with digitized video graphics merge units, as MacInnis teaches, to blend various graphics layers to achieve a single logical screen.

Chiraz does not disclose based on alpha blending values to produce the combined frame image data. MacInnis teaches based on alpha blending values to produce the combined frame image data (*alpha values, final blended result*, Column 46, lines 1-65). The motivation for combining frame image data processing using multiple frame buffers and multiple displays with alpha blending is for layering and weighted sum averaging of previous alpha values (Column 9, lines 30-36). MacInnis is evidence that at the time of the invention, it would have been obvious to one skilled in the art of logical screen frame-based data processing to combine the benefits of multiple processors and multiple displays, as Chiraz discloses, with digitized video graphics alpha blending, as MacInnis teaches, to blend various graphics layers to achieve a single logical screen.

Chiraz does not disclose synchronously. Bright teaches from the respective local frame buffers and to synchronously produce combined frame image data based thereon (Column 2, lines 48-50, 55-58; Column 9, lines 55-60, *each driving a portion of the LCD display*). The motivation for combining frame image data processing using multiple frame buffers and multiple displays with synchronously combined frame image data is to enable the graphics controller (*rendering engine*, Column 1, line 25) to generate row and column addresses for refreshing the display (Column 1, lines 48-60). Bright is evidence that at the time of the invention, it would have been obvious to one skilled in the art of logical screen frame-based data processing to combine the benefits of multiple processors and multiple displays, as Chiraz discloses, with synchronization using timing logic, as Bright teaches, to enable the graphics controller

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(*rendering engine*, Column 1, line 25) to generate row and column addresses for refreshing the display (Column 1, lines 48-60).

11. Regarding claim 129, representative of claim 132, Chiraz discloses a method of claim 128, further comprising frame image data may overwrite another (Column 24, lines 56-61)

Chiraz does not disclose the layers of frame image data depending on the priority of the layers or synchronously layering the frame image data such that one of the layers of frame image data. MacInnis teaches the layers of frame image data depending on the priority of the layers or synchronously layering the frame image data such that one of the layers of frame image data (Column 46, lines 1-30). The motivation for combining frame image data processing using multiple frame buffers and multiple displays using overwrite with layering is to avoid processing and storing data that is not to be displayed (Column 46, lines 37-51). MacInnis is evidence that at the time of the invention, it would have been obvious to one skilled in the art of logical screen frame-based data processing to combine the benefits of multiple processors and multiple displays using memory overwrite, as Chiraz discloses, with digitized video graphics alpha blending in layers, as MacInnis teaches, to avoid unnecessary processing and storage costs.

12. Regarding claim 140, Chiraz discloses the method of claim 139, wherein the common image data include texture data (Column 3, line 35).

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen E. Quillen whose telephone number is (703) 605-4584.

The examiner can normally be reached on Tuesday – Friday, 8:30am – noon and 1:00 - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew C. Bella, can be reached on (703) 308-6829.

Any response to this action should be mailed to:

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Or FAX'd to:

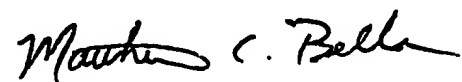
(703) 872-9314 (for Technology Center 2600 only)

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Sixth Floor (Receptionist), Arlington, Virginia

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number (703) 305-9600 or (703) 305-3800.

Allen E. Quillen
Patent Examiner
Art Unit 2676

August 25, 2003



MATTHEW C. BELLA
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